REMARKS

Claims 1-5, 38 and 42-49 are pending in the instant application. By this communication, Applicants have amended claims 1 and 49 to further clarifying the invention. The Amendment is fully supported by the specification, and does not introduce new matter or require a new search.

Notwithstanding the foregoing, Applicants expressly reserve the right to prosecute subject matter no longer or not yet claimed in one or more applications that may claim priority hereto. Applicants respectfully request reconsideration of the present application in view of the foregoing amendments and in view of the following comments.

Non-Art Related Remarks

35 U.S.C. §112, Second Paragraph

The Examiner has rejected claims 1-5, 38, and 42-49 under 35 U.S.C. §112, second paragraph, as allegedly being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In particular, the Examiner has pointed out the following typographical errors in claim 1: "M" is utilized in place of "m" in line 5, and the phrase "Hp is" was not completed in the final two lines. Applicants gratefully acknowledge the Examiner's efforts in pointing out these typographical errors, and have amended the claim to correct the errors, rendering the rejection moot.

With respect to the rejection to claim 49, the Examiner has pointed out that the claimed compounds are not necessarily within the scope of the compounds of claim 1, from which claim 49 depends. Applicants have amended claim 49 accordingly. As amended, the polyamides of claim 49 comprise from 3 to 6 carboxamide residues on each side of a γ-aminobutyric acid or 2,4

diaminobutyric acid linkage. Each carboxamide of the polyamide is N-methylpyrrole, N-methylimidazole, or N-methyl-3-hydroxypyrrole. Applicants respectfully submit that the foregoing amendment renders the rejection moot.

CONCLUSION

Applicants believe that the present application is now in condition for allowance. Favorable consideration of the application as amended is respectfully requested. The Examiner is invited to contact the undersigned by telephone if it is felt that a telephone interview would advance the prosecution of the present application.

Respectfully submitted,

Date: September 27, 2002

By _____

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Appendix A: Marked-up claims, indicating the amendments.

1. (Three times amended) A method for designing a specific polyamide

$$X_1X_2 \ldots X_m\text{-}\gamma\text{-}X_{(m+1)} \ldots X_{(2m-1)}X_{2m}\text{-}R_1$$

wherein

X_1, X_2, X_m, $X_{(m+1)}$, $X_{(2m-1)}$, and X_{2m} are carboxamide residues forming carboxamide binding pairs X_1/X_{2m}, $X_2/X_{(2m-1)}$, $X_m/X_{(m+1)}$ [~~X_1/X_{2m}, $X_2/X_{(2M-1}$, $X_M/X_{M+1)}$~~],

γ is γ-aminobutyric acid or 2,4 diaminobutyric acid, and

R_1 is $-NH(CH_2)_{0\text{-}100}NR_2R_3$, $-NH(CH_2)_{0\text{-}12}CONH(CH_2)_{0\text{-}100}NR_2R_3$, or $-NHR_2$, where R_2 and R_3 are independently selected from the group consisting of H, Cl, NO, N-acetyl, benzyl, $C_{1\text{-}100}$ alkyl, $C_{1\text{-}100}$ alkylamine, $C_{1\text{-}100}$ alkyldiamine, $C_{1\text{-}100}$ alkylcarboxylate, $C_{1\text{-}100}$ alkenyl, a $C_{1\text{-}100}$ alkynyl, and $C_{1\text{-}100}$ alkyl-L, where L is selected from the group consisting of arylboronic acids, biotins, polyhistidines comprised from about 2 to 8 amino acids, haptens, solid phase supports, oligodeoxynucleotides, N-ethylnitrosourea, fluorescein, bromoacetamide, iodoacetamide, DL-α-lipoic acid, acridine, captothesin, pyrene, mitomycin, texas red, anthracene, anthrinilic acid, avidin, DAPI, and oligodeoxynucleotide, isosulfan blue, malachite green, psoralen, ethyl red, 4-(psoraen-8-yloxy)-butyrate, tartaric acid, and (+)-α-tocopheral, suitable for use as a DNA-binding ligand that is selective for identified target DNA-sequences 5'-$WN_1N_2 \ldots N_mW$-3' where m is an integer having a value from 3 to 6, the method comprising:

(a) identifying a target sequence of double stranded DNA having the form 5'-$WN_1N_2 \ldots N_mW$-3', $N_1N_2 \ldots N_m$ being the sequence to be bound by carboxamide residues, wherein

each N is independently chosen from the group A, G, C, and T, each W is independently chosen from the group A and T, and m is an integer having a value from 3 to 6;

(b) representing the identified sequence as 5'-W*ab* ... *x*W-3', wherein *a* is a first nucleotide to be bound by the X_1 carboxamide residue, *b* is a second nucleotide to be bound by the X_2 carboxamide residue, and *x* is the corresponding nucleotide to be bound by the X_m carboxamide residue;

(c) defining *a* as A, G, C, or T to correspond to the first nucleotide to be bound by a carboxamide residue in the identified sequence;

(d) selecting Im as the X_1 carboxamide residue and Py as the X_{2m} carboxamide residue if a = G;

(e) selecting Py as the X_1 carboxamide residue and Im as the X_{2m} carboxamide residue if *a* = C;

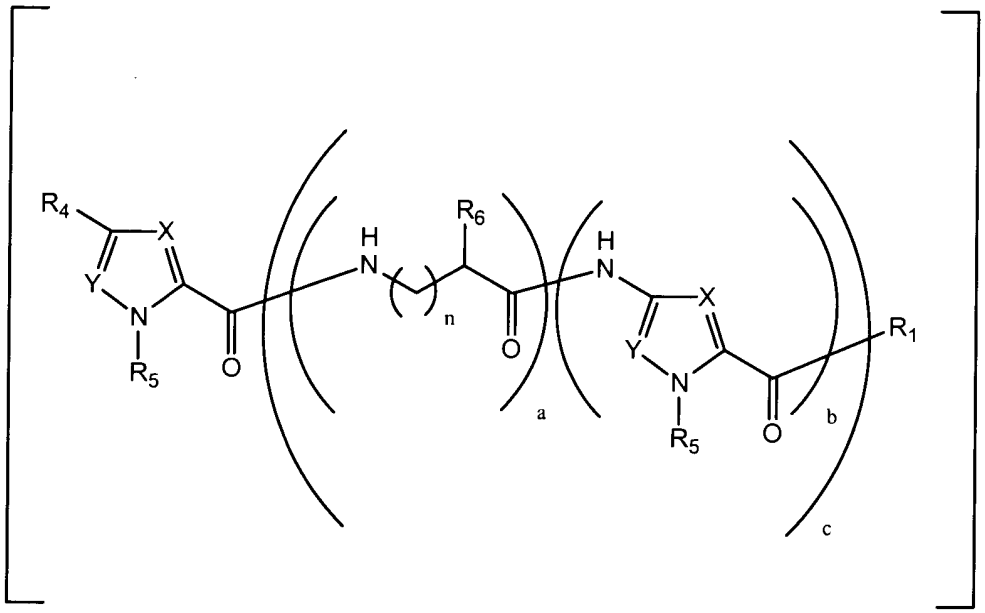
(f) selecting Hp as the X_1 carboxamide residue and Py as the X_{2m} carboxamide residue if *a* = T;

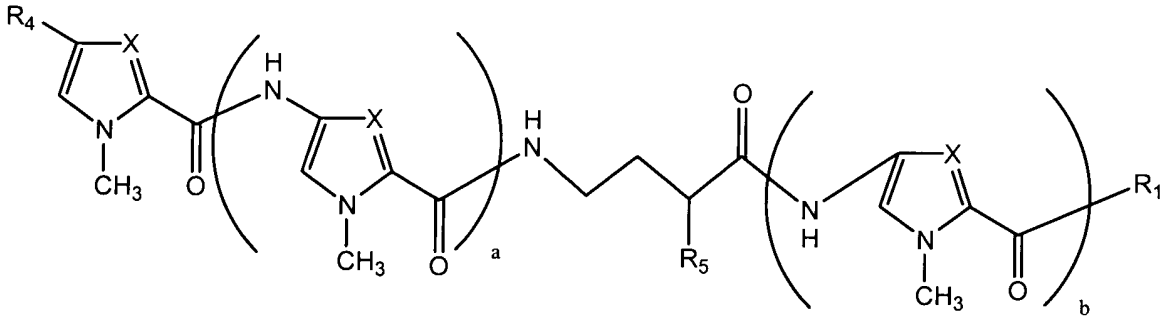
(g) selecting Py as the X_1 carboxamide residue and Hp as the X_{2m} carboxamide residue if *a* = A; and

(h) repeating steps c – g for *b* through *x* until all carboxamide residues are selected;

wherein Im is N-methylimidazole, Hp is 3-hydroxy-N-methylpyrrole , Py is N-methylpyrrole, A is adenine, G is guanine, C is cytosine, and T is thymine.

49. (Twice Amended) A polyamide designed by the method of claim 1, having the structure:





wherein

R_4 is selected from the group consisting of H, NH_2, SH, Cl, Br, F, N-acetyl, and N-formyl;

[each R_5 is independently selected from the group consisting of H, $(CH_2)_{0\text{-}6}CH_3$, $(CH_2)_{0\text{-}6}NH_2$, $(CH_2)_{0\text{-}6}SH$, $(CH_2)_{0\text{-}6}OH$, $(CH_2)_{0\text{-}6}N(R_7)_2$, $(CH_2)_{0\text{-}6}OR_7$, and $(CH_2)_{0\text{-}6}SR_7$, wherein R_7 is $(CH_2)_{0\text{-}6}CH_3$, $(CH_2)_{0\text{-}6}NH_2$, $(CH_2)_{0\text{-}6}SH$, or $(CH_2)_{0\text{-}6}OH$;]

[each R_6] $\underline{R_5}$ is [independently selected from the group consisting of] H[,] $\underline{\text{or}}$ NH_2[, OH, SH, Br, Cl, F, OMe, CH_2OH, CH_2SH, and CH_2NH_2];

R_1 is $-NH(CH_2)_{0-100}NR_2R_3$, $-NH(CH_2)_{0-12}CONH(CH_2)_{0-100}NR_2R_3$, or $-NHR_2$, where R_2 and R_3 are independently selected from the group consisting of H, Cl, NO, N-acetyl, benzyl, C_{1-100} alkyl, C_{1-100} alkylamine, C_{1-100} alkyldiamine, C_{1-100} alkylcarboxylate, C_{1-100} alkenyl, a C_{1-100} alkynyl, and C_{1-100} alkyl-L, where L is selected from the group consisting of arylboronic acids, biotins, polyhistidines comprised from about 2 to 8 amino acids, haptens, solid phase supports, oligodeoxynucleotides, N-ethylnitrosourea, fluorescein, bromoacetamide, iodoacetamide, DL-α-lipoic acid, acridine, captothesin, pyrene, mitomycin, texas red, anthracene, anthrinilic acid, avidin, DAPI, and oligodeoxynucleotide, isosulfan blue, malachite green, psoralen, ethyl red, 4-(psoraen-8-yloxy)-butyrate, tartaric acid, and (+)-α-tocopheral;

each X [and Y are] $\underline{\text{is}}$ independently selected from the group consisting of N, CH, $\underline{\text{and}}$ COH[, CCH_3, CNH_2, CCl, and CF];

[~~each n is an integer from 1 to 2;~~]

each a is an integer from [0 to 1] $\underline{2 \text{ to } 5; \text{ and}}$

each b is an integer from [1 to 5] $\underline{3 \text{ to } 6}$[~~; and~~

c is an integer value from 2 to 10].